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SOIL CONSERVATION •

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☆ THIS MONTH ☆

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WELLINGTON BRINK

Editor

Art Work by

W. HOWARD MARTIN

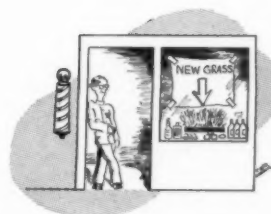
SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, with approval of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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BARBER SHOP DISPLAY.—In the Monte Mucho Soil Conservation District, a drive to acquaint southwest Texas ranchers with new grasses is attracting unusual attention.

After a full description of a grass is run in the local newspaper, a sample is placed in the window of Fred's barber shop in Hebbbronville, along with other specimens. Fred is no longer just a barber—he's getting to be quite a nurseryman to boot, what with seacoast bluestem, red sagegrass, KR bluestem, crinkle-awn, and tanglehead crowding out the hair tonic placards in his window.

17,000 FEET OF TILE.—A record for installing tile drainage is being made in Maine where 17,000 feet are being laid at the C. A. Powers farm, at Fairfield. It will drain a 40-acre field. The herringbone system, laterals 60 feet apart, is being used with 500 feet of open drain, 2 to 3 feet deep, as an outlet. The record day's installation was 2,300 feet.



FRONT COVER.—Spring comes to this beautifully contoured peach orchard that belongs to Roy Brannon, Inman, S. C. It is in the Broad River Soil Conservation District.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



Sprinkling is as advantageous to this vineyard set out in 1947 as to older vineyards. Soil borings show excellent penetration and utilization of water. There has been no loss of water by runoff or erosion. Evaporation losses are small.

ARTIFICIAL RAIN MAKES A VINEYARD THRIVE



The quick-coupling sections of aluminum pipe are easily moved by one man. The area covered is greater to the lee than to the windward side; allowance for this is made in the number of rows the pipe is moved at each shift.

By **HERBERT A. HOPPER** and
CARL M. FORSBERG

NOTE.—The authors are soil scientist and engineer, respectively, Soil Conservation Service, San Jose, Calif.

WATER is precious in the Santa Clara Valley of California. Maintenance of natural reserves is vital to insure a continued supply for agriculture, industry, and domestic use. The en-

tire valley depends on water pumped from underground reservoirs at depths of 80 to 600 feet. During the last three decades the depth to water has been steadily increasing.

The Santa Clara Valley Water Conservation District has attempted to offset the drain on water supplies by building a series of dams in the mountains that surround the valley. These collect excess runoff during the winter months. The water is then percolated into the deep gravel beds that underlie the valley floor.

This method of water conservation has been helpful to many parts of the valley but not to all. The Evergreen Soil Conservation District, unfortunately, is one of the areas which has not benefited, due to geographical location and geologic formations. Farmers in the Evergreen district, therefore, are gravely concerned by the lowering water table and keenly interested in any method of conserving the water presently available.

Water conservation was the big problem that faced the Evergreen Soil Conservation District when it was organized in 1943. To meet it—and it was met with considerable success—irrigation systems were revised to fit the land. Revisions consisted mainly of contour checks and furrows to fit the soil type, slope, and water supply. Sprinkler irrigation was considered. But farmers were reluctant to make the change to sprinkler methods. Some thought sprinkling increased evaporation losses. Others were afraid it would increase their insect and disease problems. Resistance to sprinkler irrigation was rather general until two brothers, E. A. Mirassou and N. C. Mirassou, proved that it was both a practical and profitable answer to the water problem.

The Mirassou brothers were the first to establish a large-scale sprinkler irrigation system in the valley. They operate 300 acres of vineyard and some 58 acres of orchard land. Soon after the brothers took over management from their father in 1942, they found irrigation necessary for the production of large quantities of quality grapes. In the central coast area of California wine grapes generally are grown without irrigation. An average rainfall of 20 inches is sufficient, but in the Evergreen district the average is only 12 inches a year.

The Mirassous planned to bring the annual available moisture up to the required 20 inches, if possible. They started irrigating with downhill

furrows, and increased their production and quality. There wasn't enough water for complete irrigation from their own system so they laid pipe lines to neighbors' wells and started buying water. This helped, but costs were high and water was hard to get. They also found the water was moving soil from the top to the bottom of the furrows and they believed they were not getting maximum benefit from the water.

Being conservationists by nature—E. A. Mirassou is a director of the district—the brothers came to sprinkler irrigation as a possible answer to their problems of erosion and water conservation. The story of their success with sprinklers lies not so much in increased production or better quality—both of which had already approached the maximum—as in lower costs, savings in water, better water utilization, ease of handling, and versatility in use.

Most of the Mirassou vineyard lies on an alluvial fan with slopes varying from 2 to 6 percent. Some small areas are steeper, with short broken slopes. The long, even slopes were easy to irrigate with downhill furrows. The short, steeper, broken slopes were difficult, however, if not impossible to irrigate. Irrigation by sprinklers has produced even distribution of the water over all the land.

The alluvial soils are deep and vary greatly in their ability to take water, depending on the texture of the surface soil and characteristics of the subsoil. Sprinkler irrigation has made it possible to get even distribution, regardless of soil properties. In several areas it was impossible to get water through the furrows because the soil was loose, gravelly, and open. Consequently, some of the plants suffered. In other places, the soil took water very slowly due to a heavy, slowly permeable subsoil, and it was most difficult to get sufficient water into the soil without extending unduly the length of irrigation time. Again, some vines suffered for lack of water. The fact that differences in soils did not coincide with the planting plan added to the difficulties and the care necessary in furrow irrigation. But by sprinkler irrigation the Mirassou brothers get water to all the vines, and can control the amount of water applied by adjustments of the sprinkler heads. They find it easy to be sure the soil is getting water at the maximum rate with virtually no runoff or erosion.

When applying water by furrows it first was necessary to make the furrows—three furrows between each two rows of vines—with tractor and



Sprinkling does not require a flat ground surface. The pipe line easily climbs across hills and swales.

equipment. This was followed by a continuous day-and-night schedule of running water until the desired amount was delivered. It took one man full time to do this. He had to start the water with sufficient head to force it through to the end of the furrow as quickly as possible without causing erosion. Then he cut back the head to maintain a constant, even flow of water through the furrow from top to bottom with a minimum of waste at the lower end. It took constant care and checking to do this as changes in soil conditions, changes in slope, variation in temperature, and variations in the head of water required changes in the water entering each furrow. The net result, despite the closest attention, was too much penetration at the upper end, insufficient penetration at the lower end, runoff and wasted water at the lower end of the field, uneven distribution within the soil and about the vines, and serious erosion losses.

The operation schedule for sprinkling, on the contrary, is simple. The Mirassou brothers apply 6 inches of water in 12 hours to an area of 1.8 acres. Their irrigation system consists of 2 laterals with 12 sprinkler heads for each lateral. It easily connects with the underground pipes already established on the ranch. In using this system, tractor and equipment work for furrowing is eliminated. Once the portable system has been brought to the vineyard, no further equipment work is required. The surface pipes are distributed up and down the rows, connected to the underground pipes, and the water turned on. The sprinkler heads are adjusted and no further attention is needed except for an occasional check while passing back and forth on other work. The proper amount and rate of application are judged by the rate the soil takes the water, and they are controlled by the pressure maintained in the line. At the end of 12 hours of sprinkling, two men disconnect the 20-foot sections of aluminum pipe, carry them over seven

rows, reconnect, adjust the water, and give it no further attention. It has taken the two men just about an hour to do this. There has been no soil erosion loss and no wasted water. Penetration and distribution of water has been uniform.

Observation of moisture penetration leads to the conclusion that the percentage of water lost by evaporation is very small. Twenty-four hours following sprinkling, penetration reached 2 or 3 feet; in 3 to 5 days it reached 3 to 4 feet; and after 8 to 10 days it had reached 4 to 5 feet or more. The surface dried slowly for the first 3 to 5 days, and after 8 to 10 days it was dry to about 2 inches. The only noticeable change in the next 2 weeks was more drying of the surface. Weed growth started in 8 to 10 days but as the surface dried, the growth slowed and it was not necessary to cultivate for weed control.

With sprinkler irrigation, cultural operations are simple. Following the winter rainy season and volunteer cover-crop growth, the vineyard is disked and weeds cleared from around the vines. No further cultivation is necessary unless weed growth following sprinkling is excessive, which has not yet been the case.

With furrow irrigation, the spring cultivation was followed with furrowing and then with tillage to remove the furrows. What were formerly three tillage operations have been reduced to one.

The Mirassous have one deep well that produces about 150 gallons per minute. This is not enough water for furrow irrigation, and it was necessary to buy water from neighboring wells to provide a total of about 1,000 gallons per minute. With the sprinkler system now in use, the home well and one other well produce sufficient water, about 250 gallons per minute, to run the sprinkler continuously, as well as to supply the needs of the winery and farmstead. With the lower volume of water applied by sprinklers, it has been necessary to lengthen the season in order to irrigate the vineyard but this is offset by less cash outlay for buying water.

The Mirassou brothers have estimated the comparative costs per acre of sprinkling and furrow irrigation of a 6-inch application of water as follows:

	Furrow irrigation	Sprinkler irrigation
Labor.....	\$4	\$2
Tractor	2	—
Water	25	8
	—	—
Total.....	31	10

Sprinkling has not increased disease and pest-control problems. As a matter of fact, these problems usually are less, and plant vigor better. Mildew is always a problem in this locality and it thrives under moist conditions. But thus far there has been no increase in mildew from sprinkling. Control seems to have been accomplished with sulphur dusting. The leaves dry rapidly after sprinkling, with no more residual moisture than is common on the frequent foggy mornings during the summer. Sprinkling washes the vines of dust and leaves the leaf surface a bright, healthy green. Removal of the dust decreases the Pacific-mite problem, for the pest thrives under dusty conditions. New, healthy growth was apparent following irrigation. Sprinkling tends to move plant food applied as fertilizer down to the root feeding zone, and feeder roots move into the sur-

face layer of moist, water-compacted, unworked soil, the best and most productive soil.

Besides the vineyard, the Mirassou ranch has approximately 18 acres of prunes and 40 acres of apricots. Following success in sprinkling the vineyard, the brothers sprinkled their prunes and apricots during the winter and spring. None of the anticipated problems have developed. The pipe was easily handled in the tree rows and sprinkler heads were lowered to get low-angle distribution of the water. By keeping the water down beneath the trees, no burning of foliage or fruit resulted. Apricots were sprinkled during the bloom and jacket stage without an outbreak of brown rot. Sprinkling orchards appears to be as successful as sprinkling vineyards. Several orchardists in the Santa Clara Valley have followed the lead of the Mirassou brothers and are now sprinkler irrigating.

DISTRICT PROFILE

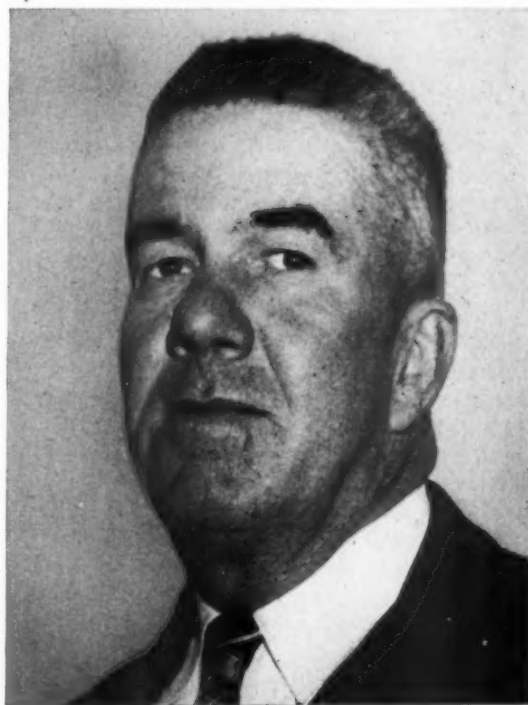
POOLE
of
NORTH CAROLINA

The sandhills section of North Carolina has produced many famous men. J. Hawley Poole, peach grower and conservation farmer of Moore County, is today carrying on the finest traditions of this land of the longleaf pine.

Poole is a recognized agricultural leader in North Carolina, having contributed much to the development of agriculture in the past 30 years. He has been a member of the North Carolina State Board of Agriculture for 14 years, and has just concluded a 1-year term as president of the North Carolina Association of Soil Conservation District Supervisors.

Poole has represented his county for three terms in the State Legislature. When the Sandhill Peach Growers' Association was organized in 1934, Hawley Poole was elected vice president. He has taken a very active part in the work of the association since that time. At present, he is a director of the National Peach Council.

After graduating from North Carolina State College in June 1917, he went directly to officers training camp at Fort Oglethorpe, Ga. He served as a second lieutenant in the Army's 81st Division



J. Hawley Poole.

and later transferred to the 156th Depot Division. After the war, in the fall of 1919, he returned to Moore County and became farm manager for E. A. Manice, who was the leading peach grower in that area. That fall they set out what was then the

largest peach orchard in North Carolina. He remained with Manice for 10 years as farm manager. In 1930 he bought a 166-acre farm near West End, N. C.

There was a time when the general public regarded the sandhill land as fit only to hold the world together, and Poole knew that in many respects this old saying was true. Around the turn of the century, land had sold for 75 cents to \$1 per acre, and no one dreamed that peaches could be grown on the deep sand. By 1916, however, several orchards had been planted and were in full production. Poole believed in the future of the sandhill peach and that it could be produced commercially at a profit. He went to work, and today has approximately 600 acres of peach orchards in Moore, Montgomery, Richmond, and Hoke Counties. He also operates a 400-acre apple and peach orchard in Surry County.

It has not been an easy job, but year by year the fertility of his land has been built up. He is a firm believer in the use of crotalaria as a soil-building crop on the deep sandy land. In 1936 he harvested enough crotalaria seed to plant two rows entirely around the earth's surface at the Equator with enough left over to seed a 100-acre plot. He says that anything so wonderful as crotalaria must have some catch to it; however, he has not found anything wrong with it so far.

Poole was one of the leaders in the organization in 1940 of the Upper Cape Fear Soil Conservation District, composed of Lee, Moore, and Harnett Counties. He had been a member of the State Legislature in 1937 when the North Carolina Soil Conservation Districts Law was passed and realized the tremendous importance of the conservation of soil and water in maintaining the fertility of the sandhill lands. At the first meeting of the district supervisors, Hawley Poole was elected chairman and for 10 years has been the "guiding light" in his district's program.

In his report as president of the North Carolina Association of Soil Conservation District Supervisors at the association's annual meeting in Burlington, N. C., on January 18, 1950, Poole spoke of the need for looking to the future.

"Education is, I think, our next most urgent need," he said. "In this I am thinking of the need for everyone to know about soil conservation. This would include district supervisors, farmers, and the general public. Beginning at home, we

cannot expect to do much unless we thoroughly understand our job. Not only should we have a good working knowledge of how to gain conservation but should thoroughly understand its far-reaching possibilities. When this is done, our hearts as well as our minds will make us worthy of the title of soil conservation district supervisors. We cannot accept too lightly this responsibility. Farmers, in far too many instances, have taken their own responsibility without serious thought. This applies to both those farmers who have not yet made a district farm plan and those who have. I am fully convinced that a deed to land does not constitute ownership. The land is old and will be here in some sort of condition for a long time to come. The life of man is very short in comparison. A deed gives us the right to use but not to abuse the acreage held by us under the terms of a legal instrument. Along with education as to responsibility as custodians of land, farmers should be informed of present-day advantages to be gained by doing a good job of conservation."

Poole has a clear conception of the problem of soil conservation, and he is a conservationist at heart. In 1948, as a result of using crotalaria and Austrian winter peas as cover crops on his orchard land, he produced a ton of peanuts and about a bale of cotton to the acre. A total of 195 bales of cotton was produced on 200 acres of land which had formerly been in orchard. In the same year, he produced 60 tons of Spanish peanuts on 100 acres that had formerly been used as a peach orchard, and 92 bushels of corn to the acre on a 5-acre block of land where he says "it was 40 feet down to solid clay."

Poole is not only applying conservation methods to his own land, but he is blazing a trail for others to follow.

—W. O. LAMBETH.

TRIPLED ACREAGE IN COVER CROPS.—W. F. "Bill" Eckhardt, Gussie Weaver, and Robert Gregory, all farmers in the Navarro-Hill (Tex.) Soil Conservation District, wanted to increase the planting of winter cover crops. They decided to establish a seed-cleaning plant at Wortham. In the first year of operation they did a landslide business. The plant cleaned and treated over 108,000 pounds of vetch seed and over 100,000 pounds of other seed—all at nominal cost to farmers.

Farmers figure the plant was worth \$30,000 to them, the market price of seed they harvested and cleaned themselves this year, and it made possible planting nearly three times as many acres of cover crops this fall.

The plant cost less than \$1,000 to install.

YOUNG RANCHERS LEARN ABOUT GRASSES



Davis presents award to first-place Comanche County 4-H team, representing the Upper Leon Soil Conservation District. Next to Davis is the team's coach, County Agent Ben R. Spears. The boys are J. W. Wright, Walter John Beaty, and Billy Fred Curry.

By SIMON E. WOLFF

TEXAS lads are getting the horse back before the cart. In the past, boys' clubs have placed emphasis on breeding and displaying blue-ribbon livestock. They have been taught to know good animals. Grass, the basic resource of the Texas livestock industry, was neglected. It is not surprising, then, that good grasses have disappeared or have been reduced to a small part of the vegeta-

tion on many thousands of range and pasture acres in the Southwest.

The trend is now definitely turning, however, and stockmen are realizing the value of knowing something about their good grasses and how to treat them. Their sons are learning about grasses, as a part of their schooling. They are taking part in grass-judging contests, an idea vigorously promoted by Waters S. Davis, Jr., rancher and president of the Texas Association of Soil Conservation District Supervisors.

Latest big-time contest was held at the 1949

NOTE.—The author is nursery agronomist, Soil Conservation Service, Fort Worth, Tex.

Texas State Fair in Dallas. It was the first time that the State fair, seen by more than two million visitors, included a grass identification contest in its numerous events. Gold, silver, and bronze medals were awarded teams and individual winners.

Fifty teams of three boys each competed. They were required to identify and give the principal characteristics of 40 plants, most of which were grasses. The specimens were mounted on cardboard. A check sheet made it possible to give the answers by marking the proper squares. The contestants were allowed 45 seconds per answer. They moved from plant to plant at the sound of a bell. About 30 judges graded the papers.

The boys had to be familiar with the plants to get through the test in the time allotted. That entailed a lot of preliminary studying and local competition.

The Upper Leon Soil Conservation District team of Comanche County 4-H members won first place with 661 points out of a possible 720. On the



Gene Tomgate, individual high scorer, receives gold medal from Waters S. Davis, Jr.

team were J. W. Wright, Walter John Beaty, and Billy Fred Curry. The coach was Ben R. Spears, county agent.

The Brown-Mills Soil Conservation District



Louis P. Merrill, regional director, and J. C. Dykes, assistant chief of the Soil Conservation Service, peek over the shoulders of two youthful contestants to see how they're doing.

team won second place with 655 points. The Brown County 4-H boys composing the team were Gene and Bill Tomgate and Burl Wayne Posey. County Agent D. R. Alford was coach.

Third place went to A. M. Duncan, Doyle Hughes, and James Hill, the Mozelle FFA team representing the Central Colorado Soil Conservation District. They were coached in their preliminary studies by Rae Curtis, vocational agriculture teacher. Their score ran to 591 points.

Individual first-place winner was Gene Tomgate, member of the second-place Brown-Mills Soil Conservation District team. Gene made 233 points out of a possible perfect score of 240. Second was Billy Fred Curry, 225 points, and third was J. W. Wright, 221 points. Both were members of the winning Upper Leon Soil Conservation District team.

Other team winners were the Llano Soil Conservation District (Llano FFA unit), fourth place; Upper Elm-Red Soil Conservation District (Sherman FFA), fifth; Hamilton-Coryell Soil Conservation District (Evant FFA), sixth; Upper West Fork (Jack County 4-H Club), seventh; Little River-San Gabriel Soil Conservation District (Florence FFA), eighth; Upper Elm-Red Soil Conservation District (Gainesville FFA), ninth; and Hood-Parker Soil Conservation District (Hood County 4-H), tenth.

Other individual winners were Everett Farris, Upper West Fork Soil Conservation District, and Bill Tomgate, Brown-Mills Soil Conservation District, who tied for fourth with 220 points each; Walter John Beaty, Upper Leon Soil Conservation District, 215 points; Bill Stephenson, Dalworth Soil Conservation District, 210; James Hill, Central Colorado Soil Conservation District, 206; Jim Davenport, Hamilton-Coryell Soil Conservation District, 205; and Bobby Garret, Llano Soil Conservation District, 203.

Grass identification, new in the agricultural world, began on a local scale under sponsorship of individual soil conservation districts. With Davis pushing the idea as a means of teaching future farmers and ranchers while they are young, and as a step in the control of erosion and the restoration of desirable forage plants, grass judging was made a part of the competitive events at the Southwest Fat Stock Show and Exposition in Fort Worth in January 1949. That was the first time that grass was thought important enough to include among the judging contests of a major show.

Then the big stock show at Houston followed suit. In 1950, when another major stock show opens in the new arena in San Antonio, a grass-judging contest will be on the agenda. Grass and other range plants will then be in the spotlight annually at the State's big shows: Fort Worth, Houston, Dallas, and San Antonio. The State-wide contests are sponsored by the Texas Association of Soil Conservation District Supervisors.

BRUSH PILES ON CONTOUR.—Davidson Brothers farm at Charlton, Mass., is made up of a lot of those long hills that wash severely if plowed for any length of time. In 1949, while a hill was being cleared of juniper and brush, 2,000 feet from top to bottom, it was found most economical to do the entire job while the equipment was there. One bothersome problem hinged on what might happen when the whole piece was left exposed. This problem was taken care of by piling the brush in windrows across the slope to break the flow of water, and that's the way it is today—long horizontal strips of bright green Ladino pasture, in season, broken by windrows of brush piled on the contour across the field. This year, or in '51 these windrows will be rolled over with a bulldozer, burned, and the strips they occupied will be seeded.

FIRST-RATE FISH CROP.—Farmers' interest in obtaining fish for their farm ponds is indicated by the 2-year record in the Allegany County and Steuben County Soil Conservation Districts in New York. In that period 150 farmers have applied to districts for fish obtained through the Fish and Wildlife Service and the State Conservation Department, and every one of them has been Johnny-on-the-spot the day and hour the fish became available at a central distribution point. Ponds stocked since 1946 are yielding 16-inch trout, 14-inch black-mouth bass, and 9-inch bluegills.

FARM POND SCORES AGAIN.—A quarter million gallons of water in an SCS-designed pond at the Clarence Wittmer Dairy Farm, near Malta, Northumberland County (Pa.) district, enabled fire fighters from four nearby towns to confine flames to the house where they originated and save four other residences from probable destruction. The pond, built in 1947 at a cost of \$250, principally for fire protection, was the only water source within reach of firemen. It is a sky pond, with an auxiliary water supply from the overflow at the dairy plant. Water used by the fire fighters lowered the pond level about 6 inches. It refilled to capacity in 3 days.

GIVING THEM A GOOD START

The Montgomery County (N. Y.) Soil Conservation District directors are giving a 1-year subscription to SOIL CONSERVATION Magazine to each new district cooperator, according to I. B. Stafford, State conservationist.



Veterans from Tuscaloosa County, Ala., study scientific measures applied to farm of Isom Crawford; cooperator of the Tombigbee-Warrior Soil Conservation District.

FROM FOX HOLE TO FARM

By T. S. BUIE

SCATTERED over the face of the earth during the last war, American young men dreamed of returning to home and loved ones. Many of them yearned for the moment when they could get back to the business of making a good life on the land.

Somehow, the farm back home meant more to them than it had ever meant before. And as they watched the farmers of many foreign lands struggling to produce crops by primitive methods and with primitive equipment, they realized as never before what a wonderful opportunity they would have to make the most of farming with modern, scientific methods and equipment back home.

I want to tell you what some of these men are doing now.

Jesse Sykes of Route 1, Mebane, N. C., watched Arabs in Algiers farm with primitive methods while he served with the Army's Second Armored Division in the North African Campaign during

1943. "I determined then and there to do a better job of farming than my father had been doing if I ever managed to get back to Orange County," he says.

After taking part in the Normandy invasion and entering Berlin in 1945, Sykes turned his thoughts to farming in earnest. Discharged as a corporal in March 1946, he wasted little time moving onto the 23 acres he bought for \$980.

Today, \$2,500 wouldn't buy those 23 acres, because Sykes has improved the small Orange County farm so thoroughly. Soil Conservation Service technicians assigned to the Neuse River Soil Conservation District helped him make and apply a soil and water conservation plan for the farm. Sykes is now using every foot of his land in such a way that it gets better as it is used.

Here are some of the things he did to improve his North Carolina farm: Thinned 2 acres of pines, seeded 2 acres to orchardgrass and Ladino clover for pasture, blasted a drainage ditch, planted 2½ acres to alfalfa, contour-farmed 4 acres, and strip-rotated the remaining 16 acres.

As a youngster, J. T. Owens, Jr., delighted in splashing about the farm after summer showers, letting the Georgia mud ooze between his toes. But as a combat soldier with the 71st Division, 571st Signal Company, in France, he changed

NOTE.—The author is regional director, Soil Conservation Service, Spartanburg, S. C.

his opinion of mud. There he spent much of his time cramped in a fox hole with mud everywhere.

It was in that fox hole that young Owens vowed that he'd never let Georgia mud ooze through his toes again. And in 1946 Jay changed from his military uniform to civilian garb. He and his father operate a small dairy farm.

They have turned their farm near Covington in Newton County into a sea of green to supply lots of grazing and to keep the soil from washing away. Twenty acres of grasses and clovers for permanent pasture are kept healthy by regular liming and fertilizing. Twenty acres of terraced cropland in corn and annual hay crops, along with 20 acres of steep hill land in sericea, provide enough roughage for the 20-odd Jerseys.

Where there were once raw gullies, grass now thrives, aided by barnyard manure. An old abandoned roadway is blanketed with kudzu. Young Owens isn't taking any chances of having any more mud ooze between his toes. Instead, he prefers to let grass tickle his feet as he continues his soil conservation work with the Upper Ocmulgee Soil Conservation District.

For more than 3 years during the last war, Oscar Hurst of Tallahassee, Fla., was an Army ground radio operator. Now, he's just a plain ground operator, but doing a very good job of conservation farming on the 280-acre family farm he returned to as a corporal in 1946.

Hurst was a farm boy who loved the soil, the plants that grew there, and the animals that grazed on the plants. It was natural that he returned to the farm and changed to conservation farming after one crop year of corn, peanuts, and idle land.

After getting the SCS technician working with the Ochlockonee River Soil Conservation District to help him map out a complete conservation plan for the farm in late 1946, he began at once to plant blue lupine, build terraces, and apply other conservation measures.

The Florida farm looks a lot better now than it did when Hurst started to fix it up. About 130 acres are still in woods, but the 150 acres of cleared land are solid green. Hurst doesn't grow row crops any more; he just "plants the grasses and legumes and lets the cows graze them."

Although Hurst is in the process of building up a registered herd of Brahma cattle, he has had to graze some "piney woods" feeders on his pastures. This venture proved profitable, but Hurst ex-

plained that "improved pastures deserve improved cattle."

One of the finest things to happen when American farm boys returned to the home farms was the beginning of so many father-son partnerships. There's no better example than that of M. A. Reed and his son, A. B. Reed, of Weakley County, Tenn.

When the 35-year-old veteran returned to civilian life after serving as a Navy lieutenant (jg) deck officer on troop carrier U. S. S. *General W. A. Mann* in all theaters of the last war, he immediately began work on his father's farm. Young Reed bought half interest in all operating capital, and the father-son partnership began with a written agreement that is an excellent example of a landlord-tenant contract.

The 373-acre Tennessee farm has flourished under the team's careful management. The Weakley County Soil Conservation District helps by arranging for the services of SCS technicians. All steep slopes are held secure with thrifty sod crops for the registered herd of Aberdeen-Angus cattle, the brood sows, and their litters.

Sloping fields suited for cropping are carefully rotated and contoured. Swampland is drained and converted to fescue-clover pasture. Better bottom land is drained and converted to highly productive cropland. Tobacco, corn, small grain, and other crop yields have increased appreciably, while soil and water losses have almost disappeared.

"Dad and I consider soil conservation absolutely essential to profitable farming," the veteran explained. And as recognition of their good judgment and work, judges selected them as county, State, and regional winners in the father-son division of the 1949 Save-Enrich Our Soil Contest sponsored by Memphis organizations.

I could cite many examples of splendid conservation work being done by veterans throughout the Southeast. Veterans are making more progress than any other single group of district co-operators, say many SCS men.

Vocational agriculture teachers and the veterans' instructors give excellent training opportunities in practical soil conservation to the veteran students. SCS men assigned to districts help in this work, as well as in farm planning and practices. It seems likely that returned veterans will prove to be the best conservation farmers of all.



WATER SUPPLY CONSERVED

By C. P. STARR

NESTLING among the crags of the lofty Wasatch Mountains near Draper in the northern part of Utah is a rugged chasm known as Bell Canyon. The crystal-clear, icy waters cascading down from the snowbanks are harnessed and stilled in the Upper and Lower Bell Canyon Reservoirs. These waters are stored for use by three irrigation groups including the Bell Canyon Irrigation Co.

Organized in 1892, the Bell Canyon Irrigation Co. is a nonprofit organization designed to furnish irrigation water to 68 farmers who operate on 3,400 acres of land. This water supplements the natural rainfall and is expected to make possible the successful growing of crops in an area of rela-



E. O. Brothers (left) and K. D. Searle lift baskets of fruit from truck preparatory to packing. Improving storage reservoir jumped crop production 25 percent in 1949.

tively arid climate. This company holds full storage rights on the lower reservoir, direct flow rights on the Bell Canyon stream, and a half interest in the upper reservoir. The reservoirs were constructed to store water during the nonuse seasons so it can be available for crops during the growing period.

In spite of all efforts to develop additional water supplies during recent years, however, officials of

NOTE.—The author is district conservationist, Soil Conservation Service, Murray, Utah.

the irrigation company found themselves still short of water needed to mature their crops successfully in the late growing season. This resulted in sub-normal yields. Too, the relatively low prices for farm products over a period of years prevented the company from further development or even adequate maintenance of their irrigation system.

In 1945 the State engineer of Utah told officials of the irrigation company that the lower reservoir would have to be repaired or he could not permit the further storage of water. The stockholders faced the problem of either putting the reservoir in shape or abandoning their farming operations.

A rather feeble effort was made to repair the structure by annual assessments. This failed to provide the funds needed to do the job.

In 1948 E. O. Brothers, president of the company, contacted the Utah State Water and Power Board in an effort to obtain low-cost financial assistance for making reservoir improvements. He learned that, under Utah law, the company could borrow funds from the State through the State Water and Power Board without interest. Directors and stockholders agreed to do this and the loan was forthcoming.

Supervisors of the West Salt Lake Soil Conservation District, of which Brothers is secretary, gave the project special priority on its work program. Plans were furnished by the State Water and Power Board. Construction equipment was obtained through the West Salt Lake district, and technical services for the ground lay-out work were furnished by the Soil Conservation Service.

Repair and enlarging of the lower reservoir dam were started in the fall of 1948, and completed in the spring of 1949 in time to permit storage of early spring runoff water.

In reporting the success of the project, Brothers says: "The increase in the storage capacity of our reservoir has allowed us to have water approximately 30 days later in the season than ever before. This has given all of our people a third cutting of hay, which they had never been able to get before. Our grain and fruit crops also have been greatly benefited. The summer and fall of 1949 were as dry as any on record, so without this additional water late in the growing period we wouldn't have been able to mature our fruit crop. By having this additional water we matured the crop and increased production over previous years by at least one-fourth."

RADIO FLASHES DAY'S PROGRAM.—Farmers in the Perdido River Soil Conservation District of Florida can find out over their radios every morning just where the local SCS men will be working during the day, in case they want to get in touch with them while they are in their community. Elmer Jones, technician of the Soil Conservation Service, worked out arrangements for a daily spot announcement at 7 a. m. over Station WTAM, Atmore, Ala., which is just over the Florida line. Here is the way the announcer puts it:

"Soil Conservation Service workers assigned to the Perdido River Soil Conservation District will be assisting the following district cooperators during the day:

"At McDavid, Fla., Edward Bush is assisting T. J. Darby and Commissioner T. C. McCoy to complete a $\frac{1}{4}$ -mile waterway to keep water from a 20-acre field off the road.

"Charlie Howell and George Langford are helping H. H. Leonard, who is sodding a water-disposal area with 250 yards of carpetgrass. This is a part of Leonard's long-time soil and water conservation plan.

"Raymond Wiggins is working with Commissioner T. C. McCoy on control measures to keep water from fields from coming into public roads in the Byars community. Morris Miller, his father, C. O. Wilson, and Carl Victor are helping with this work as a part of their complete farm soil and water conservation plans.

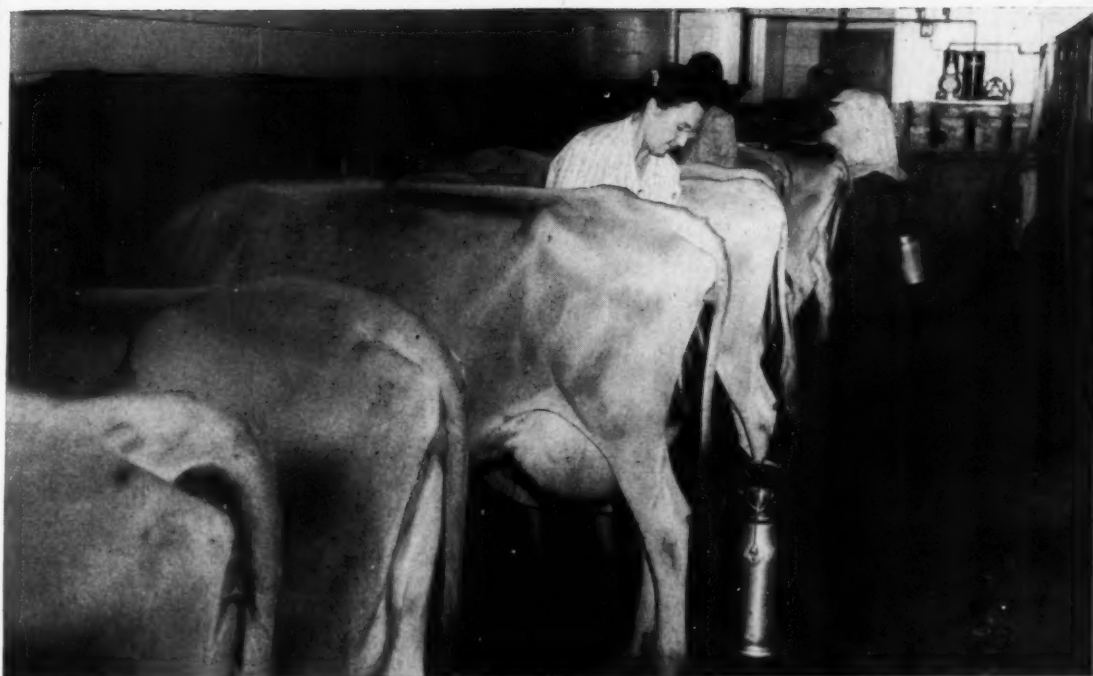
"William Brown is working with Emmett Dennis, who is completing 1,200 feet of broad-base terraces as a part of his complete farm soil and water conservation plan".

ALABAMA SCHOOL PROGRESS.—C. T. Hallmark and B. T. Richey, of the Soil Conservation Service, are receiving more requests from teachers to give their talks on soil conservation in the schools and conduct farm tours for the conservation classes than they can handle. Eight teachers in St. Clair County, Ala., alone requested farm tours for their pupils during one recent month. Hallmark participated in a program on soil conservation at a county-wide meeting of the 160 teachers of the county and helped the program committee of the St. Clair Teachers Association work up their program for the year.

Plans have been made to enlist more teachers in Cleburne County, Ala., to teach soil and water conservation in the schools.



SOIL CONSERVATION SERVICE



Mrs. Hicks supervises operations in this modern milking room. She shares actively with her husband the running of their farm.

HIGHER PRODUCTION, LOWER COSTS, FROM IMPROVED PASTURES

By RAYMOND C. PESNELL

MR. AND MRS. Grover C. Hicks have hedged against any likely drop in farm prices by pushing up production and cutting down operating costs. At the same time they have protected their 788-acre farm near Bernice, La., against soil erosion.

As a result of well-rounded conservation, Mr. and Mrs. Hicks are now getting an average of 80 to 90 gallons of milk a day from their herd of Jersey cows. Former production was only half that much.

Improved pastures, rich in nourishing grasses and clovers, furnish so much good grazing that the cows no longer must be fed hay in summer and fall—now they get hay only in four winter months.

"Our hay costs have been cut in half," said

NOTE.—The author is work unit conservationist, Soil Conservation Service, Bernice, La.

Mrs. Hicks who knows conservation farming thoroughly and does a large part of running the farm. "Higher production and lower costs come from our conservation program. You can trace it to improved pastures, a well-distributed water supply, the strength of the grass and clover from fertilizing, and other conservation measures."

Mr. and Mrs. Hicks recently received a certificate of merit from the Louisiana Bankers Association for outstanding soil conservation work. The farm was about played out when Mr. and Mrs. Hicks decided in 1946 to change the use they were making of the land. At that time 400 acres of the farm had been in cultivation for years. Ugly gullies streaked across the fields. About 388 acres in woodland and swamps were always too wet to cultivate. The wet acres stood idle, producing nothing.

All that is changed. Three years ago Mr. and Mrs. Hicks became cooperators with the D'Ar-



Robert H. Bolton, vice president of bankers association, hands Hicks (right) certificate of merit.

bonne Soil Conservation District. Through the district they obtained the help of Soil Conservation Service technicians on a coordinated program that included all the dovetailing practices the farm needed to control erosion and restore productiveness. Mr. and Mrs. Hicks had already changed from row cropping to pastures. Now, with the help of their district, they were ready to carry out a whole conservation program in earnest.

Work was started on the pastures. The soil was given a ton of lime and 300 pounds of phosphate per acre. Bottom-land pastures were seeded with Dallis, Bermuda, Suiter's grass, ryegrass, and White Dutch clover. Hill pastures were seeded with Dallis, Bermuda, ryegrass, and Kobe lespedeza.

This combination of forage plants gives year-round grazing. The only time that the livestock can't get out and graze is when the ground is covered with snow. That doesn't happen often around Bernice.

To keep the pastures in prime condition, the conservation program calls for liming every 5 years and phosphating every 2 years. To permit deferred and rotational grazing, the grassland has been divided into four pastures by fencing, and another fence is to be built so that there will be five pastures. The stock can be shunted from

pasture to pasture to prevent overgrazing and to give each pasture a rest at the proper season. This system permits the good forage plants to maintain their vigor and to grow and spread.

"Last summer when there was a bad drought," Mrs. Hicks said, "our pastures stayed green. Pastures on farms around us were poor—dried up, brownish, burned-out looking. They didn't offer much grazing."

There was a time, before the conservation program, when Mr. and Mrs. Hicks had to haul water in a truck from Bernice, a mile and a half away, for their livestock. In carrying out the conservation program, they have developed two stock ponds and three improved springs that are completely enclosed to protect the water. Electric pumps force the cold, fresh spring water to seven concrete troughs scattered around the farm and to the big new barn. Another spring provides water for the household.

The cropland had already been terraced and the terraces are being maintained on the pastures. Some of the hill fields are steep and the terraces hold the rain until it can soak into the ground.

The swampland has been drained and put to good use as pasture. Forty acres of woodland have been cleared, another 60 acres are to be cleared. The rest of the woodland is being managed for perpetual yield. The woods are protected against fire. Trees are cut selectively so that the stand continues to help protect the watershed against erosion. It can be relied on to furnish an income from future cuttings.

Mr. and Mrs. Hicks have around 125 Jersey cows and heifers. They raise all their own heifers. They usually milk from 36 to 40 cows. In addition, they now have a herd of about 100 Hereford beef cattle. The milk cows are fed the usual concentrates but the beef cattle get no extra feed at all except in freezing weather when they are given some hay and a little cake. Dairy and beef cattle are supported from the 400 acres of improved pastures. And they are doing mighty fine by the looks of things.

SECRET OF PASTURE SUCCESS.—Farmers in the Alapaha and Altamaha Soil Conservation Districts in south Georgia are spending from \$30 to \$40 per acre to develop permanent pasture on land that cost them \$10 to \$15 per acre. The seeding of grasses and legumes adapted to the different soil types, plus proper fertilization, is the secret of the success farmers in this area are having in developing good pastures, according to R. N. Jobe, district conservationist.

HE MADE HIS FARM GREEN AND PROFITABLE



Fields relaxes while his wife fishes in the 2-acre pond in front of their house. The pond took the place of gullies.

By CAL L. ROARK

THERE'S a good living and financial security for the family that can take misused land and redeem it. That one thought stayed uppermost in my mind as I went about with F. O. Fields over his 320-acre farm near Gainesville in Sumter County, Ala.

Mr. and Mrs. Fields are rightly proud of their farm, their home, and their success in applying a complete soil and water conservation program to the run-down farm they bought in 1936.

Fields had the nerve to buy with borrowed money a farm that had been under mortgage all but 2 years since it was granted by the Government to its first owner about 125 years ago. In 1936 Fields was foreman in an SCS-CCC camp located on the near-idle farm. He realized that this land, even though scorched from frequent

fires and gullied in spots down to the white limestone, could be molded into a profitable farm with complete soil and water conservation treatment and hard work.

After the CCC camps were closed in 1942, the Fields family moved to the farm and started what then seemed to be a long drag. But the tall, lean farmer had learned lessons while supervising the work of CCC boys on other farms that made him know what to do.

That's why he enlisted the aid of SCS technicians assigned to the Black Belt Soil Conservation District. Together, they laid a master plan for handling the land—a plan that fit the land as well as Fields' preferences.

Today, 7 years later, the farm is completely covered with lush pastures and fast-growing timber crops—all except a 2-acre garden and truck patch. There are Caley-peas and Johnsongrass, Dallisgrass, white Dutch clover, Persian and Lappacea

NOTE.—The author is information and editorial specialist, Soil Conservation Service, Spartanburg, S. C.

clover, black medic, sericea, rescuegrass, sweet-clover, Kentucky 31 fescue, and reseeded crimson clover. These supply more than enough grazing and hay for all the beef cattle that Fields wants to keep. He buys what he terms "skin and bones" in the fall and grazes the animals until June or July, by which time they have gained about 300 pounds each. Then he markets them.

This allows him to harvest an abundance of seed and surplus top growth for hay and mulch. No grain is produced or fed on the farm—just hay and pasture. The Sumter County farmer not only harvests bumper seed crops but also cleans the seed in his own cleaner on the farm.

Here's an example of the returns from one 17-acre field: In 1944, the field of Dallisgrass, Caley-peas, and mixed clovers carried 12 small steers for 8 months, giving them all they could graze. He then harvested 10,000 pounds of Caley-pea seed, 2,890 pounds of Dallisgrass seed, and quite a bit of mixed clover seed. A 3-year gross income from seed alone on this field amounted to \$180 an acre.

Bees and controlled grazing both contribute to the heavy seed yield. Fields keeps 25 stands of

bees mainly to aid pollination. Fertilizers play an important role, too. Each year, about 300 pounds of fertilizer are applied to each acre. Lime is not needed because all of the open land is sweet "prairie land."

By February 1947 the land that had been kept mortgaged for nearly 125 years was clear of all indebtedness. It is stocked, well-equipped, fenced, has adequate barn and shed space. The Fields have a comfortable modern home and are preparing to build another for the newly married son who has decided to farm with his father.

There are other improvements, too: 25 acres of pines set out in 1936 on washed and abandoned cropland; a 2-acre farm fish pond in front of the home, where Fields finds rest while Mrs. Fields wields her favorite rod and reel; 5 other small ponds scattered over the farm to supply needed stock water.

"I figure my place would bring more than five times what I paid for it," says Fields. "But, of course, I don't want to sell it. It's all clear, paid for with money that came from cattle and seed from soil-conserving crops."

NOTES FROM THE DISTRICTS



Molof, McNeill, and Dewey.

VISITOR FROM OVERSEAS.—Hector McNeill, British cabinet officer, took back to London, after his recent visit to the United States, some first-hand information on conservation of soil and water. He got a practical demonstration of these methods at the High Time Farm of Charles S. Dewey, Jr., at Far Hills, near Somerville, N. J. There, with Somerset County farmers who also were guests

of Dewey, he saw 1,100 feet of diversion terrace, 20 feet wide, built and seeded. The terrace, built on a gentle but severely eroded slope, will catch and divert water flowing from an adjacent farm. It was built in 3 hours by Dewey's farm workers, using regular farm equipment—two tractors and two plows. The complete conservation farm plan at High Time calls for grassland farming in strips reseeded parallel with the new terrace.

McNeill told Dewey and Jerome Molof, of the Soil Conservation Service, that until after World War II there seemed to be no pressing need for soil conservation on English farms, since most of the hilly country was in pastures. During the war it became necessary to cultivate all available land, which entailed the breaking of a great deal of sod. Since then, he said, English farmers and government leaders have seen erosion, increasing from year to year, even in the more stable soils of the country.

PRACTICES WHAT HE PREACHES.—Theodore Hegseth, of Carlisle, Minn., is chairman of the board of supervisors of the West Otter Tail Soil Conservation District. He operates about 850 acres of land and in the past few years has dropped his corn acreage from 250 to 80. The capability map developed by the Soil Conservation Service showed that his land needed longer rotations.

"Before making the change we took an awful licking from sheet erosion on a couple of fields," Hegseth reported. "On one 50-acre field of corn we lost an inch of soil in one rain. It had been cropped heavily and was low in organic matter."

A GOOD IDEA FROM TEXAS

When the Starr County Soil Conservation District supervisors got ready to have the district's program and plan issued in printed form, they went to the daily newspaper in Mission, Tex., found out how much it would cost, then went out and sold enough advertising to pay the printing bill. The newspaper people cooperated so closely that they became interested in conservation and invited the supervisors to furnish the newspaper with news items about district operations.

With the newspaper's help, the supervisors put out a fine brochure embodying the program and work plan. *They made a \$300 profit on the deal. With part of the profit they subscribed for 100 copies of SOIL CONSERVATION Magazine*, one for each businessman who advertised in the brochure and one for each key farmer assisting with the district's work. District supervisors are: R. T. Margo of Rio Grande City, chairman; Rafael A. Guerra, Linn; Gorgonio Guerra, Viboras; Jose P. Vera, Grulla; and Raul Gonzales, Roma.

MORE HELP COMING UP.—Soil and water conservation and good land use will be accented in the program of the million dollar FFA-FHA State camp project announced by the West Virginia State Board of Education. The camp will be located on the gently rolling 228-acre Easter farm, 2 miles south of Ripley, Jackson County. Construction will be started in 1950.

Authorized by the 1949 State Legislature, the camp—first of its kind in the State—will serve the Future Farmers of America, the Future Homemakers of America, and other school groups. The facilities also will be available to other organizations for educational meetings.

Development of the project will make it possible for school children from all parts of the State to get together under the direction of competent personnel for the purpose of building leadership, cooperation, citizenship, improved agriculture and homemaking, wholesome recreation, and other purposes.

Financing will be by public donations to the State FFA-FHA Foundation, Inc., and the State Board of Education. It is expected that members of these and other school groups, and rural, civic, and business organizations will lend financial support.

Preliminary planning calls for housing to accommodate groups of 500 or more persons in comfortable cottages. There will be a dining room, chapel, assembly hall, swimming pool, and facilities for indoor and outdoor recreation, sports, and social activities. The development will eventually include a museum and a center to promote teaching of home crafts.

The site lies across Mill Creek from U. S. Highway 21, and is three-fourths encircled by the stream. It was chosen from a group of four farms in as many different counties after inspection by engineers and architects.

AGRICULTURAL CENTERS.—Early in November Everett C. Norberg and T. Swann Harding made an automobile trip through parts of New York State to visit a half dozen unified county agricultural centers. Both are with the Department of Agriculture—Norberg, in the Office of Plant and Operations, and Harding, editor of the employees' news bulletin, *USDA*.

In these locally initiated centers all Department workers, insofar as can be arranged, have offices. This includes Soil Conservation Service, Extension Service, Production and Marketing Administration, and sometimes production credit associations, Federal land banks, and Farmers Home Administration.

The idea behind such centers is to enhance efficiency, eliminate confusion, and make for greater convenience to farmers. The farmer who brings his problems to a Department representative does not like to be sent along to some other building or perhaps even to another town in the same county.

Each agency in the center pays about the same amount toward operation of the center as would go for rent otherwise.

The centers are usually removed from the heart of town and have ample meeting and parking facilities. They are paid for generally by local subscription and fund-raising schemes. In New York they are usually owned by the Farm and Home Bureau and 4-H Club associations, and other agencies pay rent. The grouping of specialized workers together is doing wonders to build up a healthy esprit de corps and improve the effectiveness of all.

On this trip, Harding reports, a car was provided by Irving B. Stafford, State conservationist, stationed in Ithaca. They visited soil conservation workers in centers at Penn Yan, Mount Morris, Batavia, Albion, New Hartford, and Cobleskill. The first soil conservation district in the State of New York was organized at Cobleskill in Schoharie County. Before the agricultural center was occupied soil conservation work was in the town of Schoharie. Also visited were the offices of District Conservationist Everett H. Clark in Oneonta and the Broome County soil conservation work unit in the courthouse at Binghamton.

"At Waterloo, Seneca County," says Harding, "we came across a rented setup which proved to be a sort of halfway house to an agricultural center. Here the Soil Conservation Service, the Production and Marketing Administration, and the Extension Service were neighbors under one roof. Formerly, not even Extension was united in one place, some of its work being in Romulus, though SCS was already in Waterloo. Here a very important point was well made by Emil Kahabka, of SCS, who remarked that it is very easy to misunderstand a fellow and think him a fool unless you work by him, come to know him well, and thus understand his agency's objectives and why he does what he does as he does it.

"Largely through local initiative and contributions, New York State now has 10 unified county agricultural centers in its 56 counties and Monroe County is raising money for a center."

FARMERS ATTACK SPECIAL PROBLEM.—The district supervisors in seven northeastern Illinois counties (Grundy, Livingston, Kendall, Will, Kankakee, Iroquois, and La Salle) have organized the Upper Illinois Association of Soil Conservation Districts. The purpose is to investigate soil conservation methods suitable for an unusual soil type common to the group.

When farmers in the association learned that the Soil Conservation Service would not have money to install a research station that had been proposed, they pitched in and did most of the work themselves. They have come in neighborhood groups, each bringing his own tools and donating a full day's work. The station is on a 200-acre tract allocated by the Army near Joliet. Will County farmers nearby have furnished their own trucks. The men have erected buildings and dug trenches and excavations for silt boxes. The work is progressing ahead of schedule. The Will County Farm Bureau contributed \$500. Donations from soil conservation districts and farm bureaus now total \$800.

When the experimental work is under way and these farm groups come to visit the station—and you can bet they will come—it will be "our" station. Who said that old-fashioned neighborliness is dying out?

CHANGED DIET.—W. H. Dewey of the West Otter Tail (Minn.) Soil Conservation District says his cattle need less bonemeal since he started using more phosphate in carrying out his soil conservation farm plan. He hasn't seen a cow chewing on a bone or a board in the last 4 years. "Now," he says, "they get the necessary nutrients from grain and hay raised on soil kept fertile by conservation farming."

Dewey helped organize the district and has been on the board of supervisors since its beginning in 1945.

PROFITS FROM TERRACES.—Increased yields from terraced and contour-tilled bean fields in the Edgewood Soil Conservation District in New Mexico not only paid for the cost of construction in 1 year, but also brought an average of \$7.29 more income to the acre than from straight-row fields.

A survey of the 1949 crop revealed that terraced and contour-farmed fields yielded an average of 600 to 700 pounds of beans to the acre and that some produced as much as 1,000 pounds. Yields from straight-row fields ran from 200 to 300 pounds less.

Figuring the average increased production from terraced fields at 250 pounds to the acre, and the price of beans as \$6.25 per 100 pounds, \$15.62 more income is shown to the acre from terraced and contoured fields.

Terraces in this area cost \$125 a mile and there are about 15 acres of cultivated land to the mile of terraces. At this rate, terraces cost \$8.33 per acre.

Therefore, the \$15.62 increased income from terraced fields not only paid the \$8.33 terracing cost, but an additional \$7.29 profit per acre. The terraces can be expected to bring increased yields from now on, while checking soil erosion.

78 MORE DAYS PASTURE.—In the same 16-acre pasture field, with the same registered Guernsey dairy herd, during the severe drought, Frederick Winthrop, Groton House farm owner, Hamilton, Mass., got 78 more days of grazing in 1949 than he did in 1948 because he irrigated.

From an SCS-designed bypass pond (60 x 100 x 8 feet) in a marshy area, a tractor-mounted motor pushed 500 gallons of water per minute through heavy 6-inch main lines and 5 sections of 20-pound, 4-inch aluminum laterals, and distributed 1 inch per acre, at a pumping cost of 98 cents per hour for 1-acre inch of water. The pasture was divided into six even sections for rotational grazing, and each received 27,000 gallons of water. One man moved the laterals from section to section, 15 minutes being required for each shift of equipment.

Winthrop turned 25 milkers into the pasture early in the spring. Irrigation was started May 17 and used 6 to 10 hours daily until July 12 when it went on an every-other-day schedule. Each section was seeded to smooth brome-grass, orchardgrass, Ladino, and creeping fescue before the irrigation system was installed. Soil is naturally droughty.

In 1948 without irrigation, Winthrop got 9 tons of hay and 61 days of grazing for 27 milkers. This year the same area produced 139 days of grazing for 25 milkers, with 15 additional animals in the pasture 35 days in June and July. There was no let-down in the quantity or quality of milk produced and the animals maintained their weight.

Out of his experience with irrigation, Winthrop suggests—

- Build the pond large enough to do the job.
- Divide the pasture so rotation will be easy.
- Apply plenty of fertilizer for seeding.
- Top-dress heavily on old sod.
- Lay the main pipes permanently.
- Use only lightweight pipes for moving.

HIGH WHEAT YIELD.—Fifty bushels of wheat to the acre was obtained by L. C. Ratliff from a 12-acre field near Fort Sumner, N. Mex., in 1949. Ratliff gives most of the credit to the soil and water conservation program he is carrying out with the De Baca County Soil Conservation District. This particular field had been difficult to irrigate because of high and low spots, and the crops had been spotty and yields poor.

In the spring of 1944 Ratliff used district equipment to level the 12 acres. He then floated, irrigated, and plowed the field several times before planting alfalfa.

Ratliff's crop-rotation program called for alfalfa 4 years, followed by small grain. After the last cutting of alfalfa in 1948, Ratliff plowed the field and seeded wheat at the rate of 108 pounds per acre, obtaining an excellent stand.

Cattlemen offered \$500 for the wheat pasturage, but Ratliff figured that the grazing was worth as much as that to him. The field was grazed from October until April and then yielded 50 bushels of 63 percent protein grain to the acre.

Figuring the pasturage at \$500, Ratliff says that the 12 acres brought him \$1,650 or \$137.50 per acre.

REGISTRATION CARDS.—A feature of the soil conservation field day by the Eau Claire County (Wis.) Soil Conservation District and other groups was the issuance of registration cards prepared and distributed by the Eau Claire Chamber of Commerce. The card:

No. _____

Name _____ Address _____
 Township _____ Section _____
 County _____ State _____

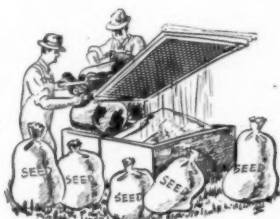
Fill in and leave at registration booth. Must be handed in to be eligible for valuable prizes.

1. Are you an active farmer?
2. Are you a cooperator with your local soil conservation district?
3. Do you want a Soil Conservation Service man from your district to call on you at your farm?
4. What conservation practices are you interested in?

Signature _____

According to District Conservationist Keliher, 2,505 cards were given out; 632 farmers asked for assistance; many indicated the practices they were interested in. Cards filled out represented 21 Wisconsin districts; 10 cards were from Minnesota farmers; 2 were from Iowa visitors; 2 were from residents of New Mexico, and 1 was from an individual from the State of Washington.

The cards were sent to the respective field headquarters of the Service. A different card was used for school children and 1,100 of these were turned in.



BLUESTEM CLEANER.—Home-made contraptions have sprung up in many Texas districts. Two of the latest were originated in the Dalworth Soil Conservation District.

After using all sorts of time-worn methods of drying their recently harvested King Ranch bluestem, the Hebron conservation group rigged up a scalper to clean the seed. Main parts of the scalper were a 3- by 8-foot screen made of hardware cloth framed with light wood, and a ¼-horsepower electric motor that drove an off-center shaft.

One end of the screen, vibrated by the shaft, was lowered and the clean seed fell through the hardware cloth into a bin underneath.

A. C. Stone, another Dalworth cooperator at Grapevine, used an old two-row, team-drawn cotton planter to make himself a Bermuda grass sprig planter. He mounted the planter on automobile wheels and built a metal platform to hold the grass sprigs. Then he added chutes of 11-inch diameter, covering disks, and a tractor hitch. The

machine worked so well that Stone donated it to the Dalworth district to be used in establishing terrace-outlet waterways on farms in his neighborhood.

PROMOTING A BIG SHOW.—In staging "Operation New Look" as its face-lifting enterprise, the Mercer County (W. Va.) USDA Council developed several interesting promotional ideas. The Princeton Bank and Trust Company offered a cash prize to the farmer traveling the longest distance. Another prize was offered for the best name for the Peter F. Pennington farm, where "New Look" was established. Pennington, a World War II veteran, is buying the 88-acre farm on the FHA loan plan. There were 21 different projects in the "New Look," among them being pasture renovation and treatment with lime and fertilizer, alfalfa seeding, home and farmstead improvement, construction of a farm pond, and a new farm road and sheep barn.

WATERWAYS MULTIPLIED.—Development of waterways before the building of terraces was a drag on progress in the Whitesboro and Gainesville work units in the Upper Elm-Red Soil Conservation District of north Texas. But a little friendly wager took care of that.

The Whitesboro work unit staff challenged the Gainesville staff to a contest to see which would get the larger number of waterways done in helping cooperating farmers to apply their conservation programs. The contest was to cover the first half of the year and the waterways were to be properly protected with vegetation.

The loser was to provide all the food and fishing gear for a picnic on Lake Texhoma. Recently the Whitesboro unit paid off.

"The important thing," says State Conservationist Paul H. Walser, "is that this friendly competition got a lot of conservation work done. In the Gainesville work unit area 84 vegetated waterways were completed in the first 6 months of the year, in the Whitesboro area, 62. Both work units considerably exceeded past accomplishments."

GREEN ACRES.—Not many years ago the Spurlock-Wetzler ranch in the Agua Fria Soil Conservation District near Phoenix, Ariz., was a rough, rugged piece of desert known as Lizzard Acres or Rattlesnake Gulch. Then Spurlock-Wetzler began to develop the ranch step by step, with the assistance of SCS technicians.

Initially, small diversion dikes were constructed, as were contour ditches, to divert floodwaters. Then came leveling of some 300 acres. Barnyard manure was added at the rate of 10 tons per acre. This put the ranch into farming operations in a big way.

The roughest and hilliest land was left out of cultivation and was used for feeding pens for cattle, trench silos, and ranch buildings. The ranch operators know that water is scarce and that even distribution is a necessity, so they have taken every possible step to conserve water from source to field. Some 4 miles of concrete-lined ditches have been constructed to prevent waste.

One field which was leveled with cuts ranging up to 1½ feet in depth produced 16 tons of ensilage to the acre this year. Thus, Lizzard Acres has become Green Acres.

WATER MAKES THE DIFFERENCE.—Bench leveling, or bench terracing as it is sometimes called, often is thought of as a new-fangled idea. However, Jimmy Sanders is farming 12 acres of land near Duncan, Ariz., that were leveled into benches about 25 or 30 years ago.

Records show that Fred Powell built these old benches by hand and with horsepower by first constructing dikes and then diverting muddy water from nearby Apache Wash into the diked areas. In those days Apache Wash was a fairly reliable source of water, but the flow later became erratic and undependable. Finally, the condition developed whereby the wash was either in flood or bone dry, so Powell had to abandon his farming enterprise but not until he had the benches in good shape.

When Sanders bought this old farm about a year and a half ago he called upon the Duncan Valley Soil Conservation District for assistance in getting the land back into production.

Soils information furnished by technicians revealed that the bench terraces built by Powell had trapped a lot of good soil behind the dikes. An engineering survey showed that the old benches could be irrigated just about as they were.

Sanders' first move was to drill a well to supplement the water from Apache Wash. SCS engineers then assisted with the construction of an elevated ditch to take the water from the pump to the bench-leveled area, and to the vicinity of the farmstead for the irrigation of a garden, small orchard, and trees and shrubs around the house. A small storage pond was constructed near the farmstead and several small irrigation structures were installed to aid in efficient control and distribution of water.

Since several sections of range land go with the Sanders farm, he plans to operate on a livestock basis. The complete soil and water conservation program which SCS technicians assisted Sanders in preparing provides for keeping most of the irrigated land in alfalfa, small grains, and irrigated pasture. The construction of more water-control structures and the lining of the supply ditches with concrete are parts of the conservation program yet to be carried out.

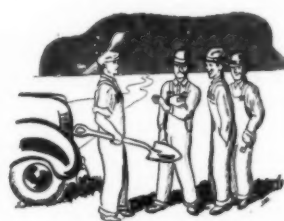
Sanders seeded 5 acres of alfalfa last fall and the remainder of the irrigated land is in wheat which is being pastured during the winter. The grain will be harvested next summer and the crop stubble and residues will be turned back into the soil to improve fertility.

The fruit and shade trees which Sanders planted around the home he built on the farm have made excellent growth because plenty of water now is available through the elevated ditch.

HEAVY MULCH, NO PLOWING.—Jim Chadbourne, North Bridgton, Maine, has pioneered in the use of mulch on very dry ground. He raises bumper vegetable

crops. After 2 years of mulching with sawdust and shavings, now 4 to 6 inches deep, Jim reports that "cauliflower headed in the summer, sprouted and grew a second crop, some stumps producing four to five salable heads. Radishes, lettuce, spinach, beets, and chard planted July 2, did very well and grew very fast. None wilted during the terribly hot weather in July and August. Lettuce heads weighed up to 3½ pounds."

Chadbourne's ground is never plowed. Sawdust and shavings are added every fall. Poultry manure and other fertilizers rich in nitrogen are harrowed into the mulch without disturbing the ground. A roto-tiller is used to grind the crop residue and work it into the mulch. "I have grown potatoes on soil that was full of sawdust, and had no scab," Jim Chadbourne says.



HE BEAT THE DROUGHT.—Fred L. Bascombe, a dairy farmer of Cumberland, R. I., was well prepared for the big drought. His pastures and meadows kept green, he harvested a second crop of good hay—strong in Ladino—he kept his 21 cows on pasture, his herd's milk production held up well, and his corn made a good yield. Bascombe is chairman of the Northern Rhode Island Soil Conservation District.

Success in combating the severe June-July-August drought stems from conservation work Bascombe first started himself and then completed with the assistance of technicians working with the district. It involved the lengthening and deepening of a sluggish, silt-blocked, shallow, narrow waterway that wound through a half mile of bog.

Bascombe, a former milk-truck driver and machinist without farming experience, was warned that the equipment would get stuck in the muck, that his well would dry up, and that numerous other dire things might happen.

He was not easily discouraged. He kept on slowly working with the water course, using his own equipment and that of a contractor, for 2 or 3 years. Then the district and Soil Conservation Service technicians came along with heavy equipment and engineering knowledge. The job then moved faster and the cost became less. He reclaimed nearly 20 acres of swamp last year.

Use of water from what is now a well-maintained ditch kept Bascombe's fields and crops green in 1949 when those of others were burning up. He mounted a high-capacity water pump on a tractor, pulled the water from many points along the ditch, and moved it over his fields through several hundred feet of 2½-inch hose to which a 50-foot length of sprinkling pipe was attached.

With a district stoneboat Bascombe cleared many acres of boulders and put the land into production. He has done a lot of fertilizing and liming in pastures and meadows. "You just have to take care of pastures and meadows. They won't produce year after year if you let them go without attention," he says. Conservation farming has cost me only \$300 in cash. Look at all I have already gotten back—and there's a lot more coming!"

MORE GRASS, LESS EXPOSED SAND.—The list of benefits from soil and water conservation grows longer daily. A Citrus County farmer of the Gulf Soil Conservation District recently told others on a tour of local farms: "The old lady is easier to live with now since the house is not covered and filled with sand."

And the native Floridian, whose grandchildren are now maturing in the same community where he was born, added: "This conservation program sure is redeeming this country. I well remember how the sand from this field where cows are now grazing on good grass used to bank up against the property line fence and cover my young peanuts."

PASTURES CREATED.—Because most of his own farm was stony and brushy, John Mann, farmer of Gloucester, R. I., rented cropland from neighbors. He became interested in conservation and started with a woodland improvement project. One day, after a talk with SCS technicians assigned to the Northern Rhode Island Soil Conservation District, he agreed to risk a little money by clearing 7 acres for pasture. It was seeded to Ladino clover. The job paid for itself the first year. Now he is spending \$1,000 for clearing. Twenty-four acres already have been cleared and more of this work is planned.

DREAM REALIZED.—Back in 1916, in his fourth biennial report, J. A. Viquesney, West Virginia forest, game, and fish warden, envisioned the day when there would be "hundreds of small farm ponds constructed throughout all sections of the State, and stocked with fish." No State in the Union, he wrote, "is so admirably adapted for constructing artificial ponds for the raising of food fish as is West Virginia, and nowhere is the industry so neglected." Today, Viquesney's dream has come true, but in a bigger way than he imagined. Instead of hundreds there are thousands of farm ponds. In the first half of 1949 alone, 250 were built in West Virginia. Farmers there are asking SCS technicians, working with soil conservation districts, to plan 3,565 and over 2,000 already have been constructed.

QUICK RESULTS FROM WATER.—With a 500-gallons-per-minute pump, 2,000 feet of 4-inch pipe, and 25 No. 70 nozzles, set up to cover an acre at a time, Roland Sanborn, conservation farmer at Gorham, Maine, brought a closely

grazed Ladino pasture to about an 8-inch growth that blossomed in 10 to 12 days. In September, when the 1949 drought was getting in some powerful licks, he set the system up on a field with a gradual slope toward the source of supply, and at intervals of 3 hours for 4 days pumped a half million gallons of water on the pasture, without curtailing the supply in two springs. Corn also was irrigated with excellent results.

CHANGING MIND[®] PAYS.—One summer day C. W. Knibbs, dairy stock farm owner, walked into the Northern Rhode Island district office at Greenville and announced that he had cut over a pond site, engaged a contractor with a bulldozer, and was ready for some technical assistance. An SCS technician visited the farm and worked up a complete conservation farm plan including a pond. He rejected the site selected by the farmer because the soil there would not hold water. A good site, in a low drainage area close to the dairy barn, was suggested. It took a lot of explaining to convince the farmer that this site would be better. The pay-off came during the 1949 drought when the water level in the pond held up so well that Knibbs had water for pasture irrigation. On the site he originally selected there would have been a dry hole.

HOPES FOR RETURN OF NATIVE GRASSES.—Francis E. Perry, a rancher who is also an editor, is a staunch supporter of the program of the Upper Leon Soil Conservation District, Dublin, Tex.

Perry was the first rancher in his part of the State to harvest Indiangrass seed as a commercial crop, and he'd like to see the day when that grass is growing again as it did before it was grazed almost out of existence.

The originator of the widely read "Perrygraphs" column finds it easy enough to change from editor to rancher by merely switching his urban derby for a wide-brimmed Stetson.

SCHOOL PROJECT

The Dodge County (Minn.) Soil Conservation District is furnishing a one-year subscription to the SOIL CONSERVATION Magazine to each village school in the district, reports Klaus Alberts, board chairman.

Plans have been made for a tour by school pupils to Whitewater State Park. In connection with this, Clifford Toquam has conferred with the Claremont superintendent of schools. The tour of one or two bus loads of pupils will be held sometime in May. It is expected to reveal a good many soil conservation problems. The Whitewater area is being purchased by the State of Minnesota because erosion and runoff have spoiled much of it for future agriculture. The district board will invite other schools to take part in the tour.



J. S. Russell presents plaques to Leavitt, Lensch, Benitt, Pharis, Ralston, Barr, and Bennett.

NEW RECORD SET.—A crowd of 70,000 or more came early and stayed late at the National Soil Conservation Field Day and Contour Plowing Match near Runnells, Iowa, last September. The attendance probably topped all figures for this type of event last year. Farmers, businessmen, school children, teachers, and professional people crowded onto four farms to see new life brought to old fields by contouring, terracing, ditch blading, tilling, pasture renovation, and many other operations.

Entries in the plowing contest included representatives from Iowa, Nebraska, Missouri, Minnesota, Wisconsin, Indiana, Ohio, Kansas, and Illinois. Dean Wilson of Urbana, Ohio, retained his national title.

High light of the program was the presentation of awards by the *Iowa Farm and Home Register* to H. H. Bennett, chief of the Soil Conservation Service; Kent Leavitt, Millbrook, dairyman and president of the National Association of Soil Conservation Districts; Julius A. Lensch, Harlan, Iowa, district commissioner; William A. Benitt, Hastings, Minn.; Donald Pharis, Liberty, Mo., president of the Missouri Association of Soil Conservation Districts; Kenneth Ralston, Roscoe, Ill.; and Everett Barr, president of the Nebraska Association of Soil Conservation Districts. The awards were presented by J. S. Russell, editor of the *Register*.

An engraved plaque was presented to Russell and to Herb Plambeck, farm service director of radio station WHO, for outstanding service in soil and water conservation, by Chris H. Jensen, chairman of the State Soil Conservation Committee in Iowa.

The 1949 affair was sponsored by the *Des Moines Register and Tribune*, radio station WHO, and the Polk County Soil Conservation District, with the cooperation

of many local and State agencies and organizations, including Extension Service, Soil Conservation Service, Farmers Home Administration, Production and Marketing Administration, and Polk County Farm Bureau.



KOREA STUDIES OUR METHODS.—Suh Kwang Jin studies farm-plan map as Lester Lawhon, Soil Conservation Service irrigation engineer, Fort Worth, explains how maps are prepared. Suh was to return to his post with the Farm Land Bureau at Seoul on completion of a 5-month study tour in the United States. He was one of nine Koreans here to study ways for improving his homeland's agricultural economy. His main interest is irrigation. A portable sprinkler system can be seen in background irrigating a field of alfalfa.